



Efficient Nitrogen Generation Solutions for Laser Cutting

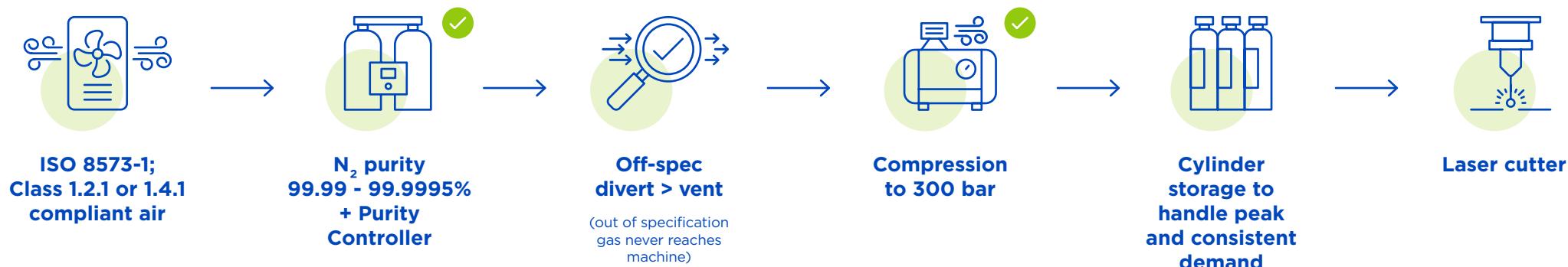
Maximise Efficiency, Cut Costs and Enhance
Quality with On-Site Nitrogen Generation



Nitrogen Is Your Perfect Edge

Nitrogen plays a critical role in laser cutting by ensuring high-quality, clean cuts. In this process, nitrogen is used as a shielding gas for the cutting zone, cooling the metal and preventing oxidation. The purity and flow of nitrogen directly impacts the final quality, which is why high purity nitrogen is essential for achieving pristine results.

From Air to Bright Edge: Oxywise-Controlled Nitrogen Supply



The Benefits of Ensuring the Right Nitrogen Supply to a Laser Cutting Process

Protects optics

Dry, oil-free nitrogen stops condensation and oil aerosols from baking onto lenses and windows, so your beam stays clean and stable. Result: fewer cleans, longer optic life, and more cutting time instead of maintenance.

Prevents oxidation

High-purity N₂ (think ≤ 100 ppm O₂) shields the hot cut from air to prevent oxidisation or discolouring. That means no grinding, no pickling, and steel that keeps its corrosion resistance.

Enables bright edges

Stable, high-pressure flow (typically 28 bar at the nozzle) blasts melt out of the cut and keeps oxygen out, leaving a smooth, bright finish. Parts come off the bed paint-/weld-ready with minimal or zero rework.



Nitrogen Generators for Laser Cutting

Laser cutting lives on gas quality, pressure, and uptime – and that's exactly where the pain hits. Missed deliveries can halt production, purity or pressure dips mean oxidation, burrs, and rework. Rentals and cryogenic evaporation impact margins, and cylinder changeovers waste operator time. As you add thicker materials or another machine, these costs only climb.

Here's how Oxywise removes those bottlenecks and gives you control:

Why Choose Oxywise Nitrogen Generators:

- On-Site Nitrogen Production:** Eliminates nitrogen deliveries, rental fees, and gas boil-off losses – cutting operating costs and removing logistics risk.
- Laser-Grade Purity & Pressure Stability:** Consistent 99.99 - 99.9995% N₂ with dry gas (dp \leq -40 °C) and stable pressure at the nozzle delivers oxide-free, bright edges and less rework.
- Fully Automated & Monitored:** Industrial PLC control with purity monitoring and auto off-spec divert, real-time flow/pressure trending, and remote diagnostics for hands-off reliability.
- Scalable, Reliable Architecture:** Tailored systems with 300-bar buffer storage and optional N+1 redundancy supports 24/7 uptime today and easy capacity growth tomorrow.
- Proven Laser Application Expertise:** Oxywise teams spec, size, and integrate systems to your materials, and duty cycle – tailored performance across EMEA shops and OEMs.
- Oxywise will specify and integrate seamlessly into your production:** Tailored performance to your exacting needs globally.





Nitrogen Generators Overview

Oxywise nitrogen generators produce high quality nitrogen from compressed air on-site by Pressure Swing Adsorption (PSA). Our generators represent a cost-effective, reliable and safe alternative to traditional nitrogen gas supplies such as cylinders or cryogenic liquid.

Nitrogen generators are available in 3 variations, Standard, SEP and MultiSEP, with capacity in a range from 1 up to 5000 m³/h from 95% to 99.9995% purity. Oxywise PSA generators are designed for 24/7 operation. The touchscreen control has user-friendly interface with automatic start/stop function based on gas consumption. Our SEP and MultiSEP series have spring loaded columns which prevent the molecular sieve from a crushing effect.

The Key Benefits of Oxywise Nitrogen Generation Systems:



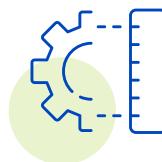
Certified
ISO-9001,
CE, PED



Optimised Cost of Ownership
Standard ROI is less than 18 months



User-friendly solutions
Plug & produce options



Space saving
Compared to liquid source or cylinders



Application support



Energy-efficiency
Up to 70% cost reduction vs. traditional nitrogen sources





Our Solutions

Oxywise provides end users, distributors, and compressed air OEMs with top-quality Nitrogen generation systems available in a **vast array of configurations** – from small standard units to tailor made systems. We collaborate closely with our customers to provide them with on-site gas generation solutions **perfectly suited to their business needs in virtually any industry.**



Skid Mounted Units

All components mounted on a common skid, ideal for ease of movement once at the install location and for regular relocation. The skid can be moved with a forklift truck or similar. Installation is semi-permanent but can be moved to a different location easily.

Standalone System

The stand-alone system consists of the essential components (compressor, dryer, generator etc.) and provides an innovative format when you are not restricted in terms of height, width or capacity etc. It is a cost-effective and maintenance-friendly solution, suitable for indoor installation. Waste heat from the compressor can also be recovered and used to reduce heating costs. Great solution for large-scale operations.



Containerised Nitrogen Plant

Tailor-made system placed in a modified ISO container which includes all system components with the advantage of being easily manoeuvrable and it can be specified to withstand environmental conditions such as tropical, sub-tropical, arctic, desert, and extreme saltwater exposure. Designed for special applications and extreme outdoor conditions.



Product specifications

Model		Nitrogen capacity		Daily capacity	Power consumption	Specific power	Storage pressure
		kg/h	m ³ /h	kg/24h	kW	kWh/kg	bar
Purity 99.995%	LaserGas ⁽¹⁾ N15-300	19.7	17.0	473	15.3	0.78	300
	LaserGas N27-300	34.8	30	835	25.7	0.74	300
	LaserGas ⁽²⁾ N50-300	52.2	45.0	1253	37.7	0.72	300

⁽¹⁾ Purity 99.995% (class 4.5) Adjustable to 99.999%, capacity 13m³/h

⁽²⁾ Purity 99.995% (class 4.5) Adjustable to 99.999%, capacity 40m³/h

Model		Nitrogen capacity		Daily capacity	Power consumption	Specific power	Delivery pressure
		kg/h	m ³ /h	kg/24h	kW	kWh/kg	bar
Purity 99.995%	LaserGas N20-30	24.4	21.0	585	17.1	0.70	30
	LaserGas N35-30	46.4	40.0	1114	28.4	0.61	30

Model		Nitrogen capacity		Daily capacity	Power consumption	Specific power	Storage pressure
		kg/h	m ³ /h	kg/24h	%/ppm	kWh/kg	bar
Containerised unit	HANA N15/4.5	19.7	17.0	473	99.995/4.5	0.8	3-30/300
	HANA N15/5.0	15.1	13.0	362	99.999/5.0	1.0	3-30/300

* Other size options available on request.





Dynamic Load Protection: Engineered for 24/7 Performance

Most PSA generators operate in cycles, with pressure tanks fluctuating between **0 and 10 bar** every few minutes. **Standard pressure vessels wear out quickly** under these conditions, leading to **frequent inspections, expensive repairs, and unexpected downtime**. Oxywise nitrogen generators are engineered for durability and efficiency in demanding environments. With dynamic load protection and an advanced molecular sieve safeguard, our systems minimise downtime, reduce maintenance costs, and ensure long-term reliability.

How Oxywise Solves This:

Standard Pressure Vessels

- Designed for static loads; not suited for frequent pressure changes.
- Fatigue-prone under cyclic loading; may fail prematurely.
- Frequent inspections and maintenance required.
- Higher risk of downtime due to structural fatigue.
- Lower upfront cost, but high long-term expenses.

Oxywise Dynamic Load Vessels

- Built for dynamic loads; handles rapid pressure cycles easily.
- Lasts 2M+ cycles before requiring an inspection.
- Longer inspection intervals; lower maintenance costs.
- Continuous operation with minimal downtime.
- Higher initial cost, but long-term savings on maintenance.

Oxywise pressure vessels last 2M+ cycles.

Standard vessels?
Only a fraction of that!

That's **years of savings** on maintenance and downtime costs.





Molecular Sieve Protection: Maximum Efficiency, Minimal Maintenance

The **Molecular Sieve** inside the PSA generator is what **separates oxygen from nitrogen**. If it gets contaminated with moisture, the entire system can **malfunction or degrade quickly**, leading to **expensive sieve replacements**.

How Oxywise Solves This:

Dew Point Sensor
Detects moisture before it can cause damage.



Automatic Shutdown Protection

If abnormal moisture levels are detected, the system will vent that particular production cycle to prevent contamination.



Saves Money on Repairs

No unnecessary molecular sieve replacements **= big cost savings**.

Oxywise prevents loss with smart monitoring.

Without moisture protection, a damaged sieve can cost **thousands** to replace.





Built-in Purity Controller

Built-in nitrogen purity controllers on Oxywise generators continuously verify the gas you deliver—live, at the outlet. If purity drifts, they auto-divert sub-spec gas, trigger alarms (local and remote). You stay compliant without constant manual sampling, and you get trend data that flags tired sieves or valves before they cause downtime. Translation: safer supply, easier audits, planned maintenance—not panicked callouts.

99.99-99.9995%

NITROGEN
PURITY

Quality protected

Off-spec nitrogen is auto-diverted before it hits the pipeline

Less firefighting, more uptime

Early warnings (trend data + alarms) let you fix issues before they become outages

Fewer manual checks

Continuous monitoring reduces staff time spent sampling and logging

Audit-ready records

Built-in purity logs make compliance and audits straightforward and fast

Lower operating costs

Early monitoring of purity ensures product quality

Smarter maintenance

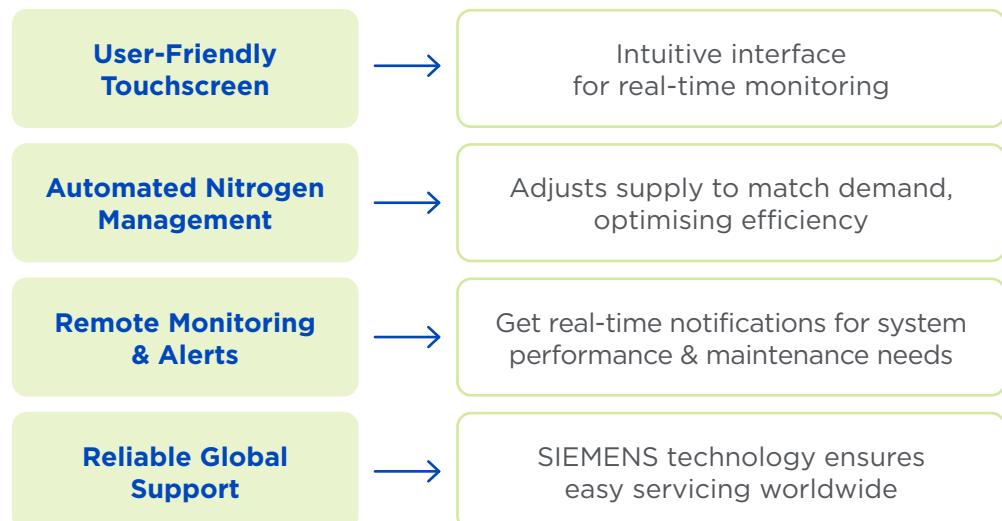
Data points to sieves/valves service schedules, ensuring timely servicing to maintain uninterrupted operation



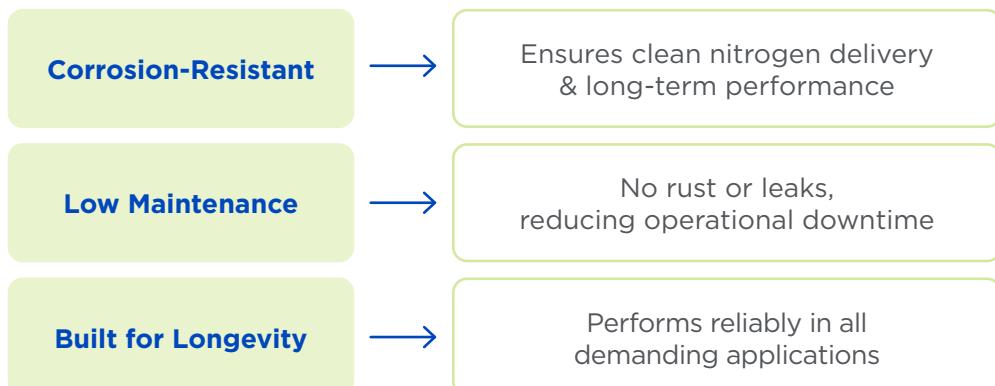
Intelligent Control & Durable Stainless Steel Piping

Managing nitrogen levels shouldn't be complicated. Oxywise's **SIEMENS-powered control system** ensures **fully automated, easy-to-use, and precise nitrogen management** for your operations. Combined with **corrosion-resistant stainless steel piping**, our system delivers **long-lasting reliability with minimal maintenance**.

Intelligent SIEMENS Control System: Precision at Your Fingertips



Stainless Steel Piping: Engineered for Durability





Service support

Maintain Peak Performance with OXYWISE Aftermarket Solutions

Proper maintenance of your nitrogen and oxygen generators is essential to unlocking maximum performance and efficiency. With regular upkeep, you can prevent costly downtime and unexpected breakdowns, ensuring your operations run smoothly and reliably. Routine maintenance not only extends the lifespan of your equipment but also boosts its overall performance, saving you money and enhancing productivity. Invest in maintenance today to safeguard your investment and keep your systems operating at peak efficiency. Oxywise offers an array of services to keep your gas generator running smoothly at all times:

- Scheduled Inspections:** Conducting scheduled inspections to check all components of the generator for wear and tear.
- Annual maintenance:** Regularly service of the equipment with original genuine annual service kits, to ensure clean and efficient gas production.
- Genuine Spare Parts:** We provide genuine OXYWISE annual maintenance service kits and spare parts. Our kits are designed for 1 to 10-year maintenance cycles.
- Calibration:** Periodically calibrating sensors and other related devices to maintain the purity levels and accuracy.
- Component Testing:** Testing major components such as compressors, dryers, and sieves to ensure they are functioning correctly.

Service Kits and Components

- 1 to 10-year** service kits
- Purity sensor** components
- Main controller** components

Service Centres:

- OXYWISE has a robust distribution and service network** around the world.
- Our state-of-the-art Service and Repair Centre**, located in Slovakia, with highly educated engineers and technicians.

By adhering to a comprehensive maintenance schedule, you can significantly enhance the efficiency, reliability, and longevity of your nitrogen and oxygen generators.

For further details, information, and support, please visit our website www.oxywise.com, or contact your local OXYWISE distributor.





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Oxywise specialises in developing and producing PSA Nitrogen and Oxygen systems, leveraging extensive engineering experience.

Our product range includes dosing systems, filling ramps, and gas distribution systems, with installations available in ISO certified shipping containers tailored to customer specifications. We are committed to delivering effective, reliable, and affordable solutions that meet our customers' needs. Our goal is to continuously improve the quality of our products and services, focusing on installation and maintenance. Oxywise is your dependable partner in the industrial gases sector, driven by qualified staff, responsible management, and a customer-oriented approach. Contact us today to discuss how we can help you improve your operations and grow your business.

